Bystronic

WORLD

The magazine for cutting, bending, and automation

02-2022

SHAPING THE FUTURE

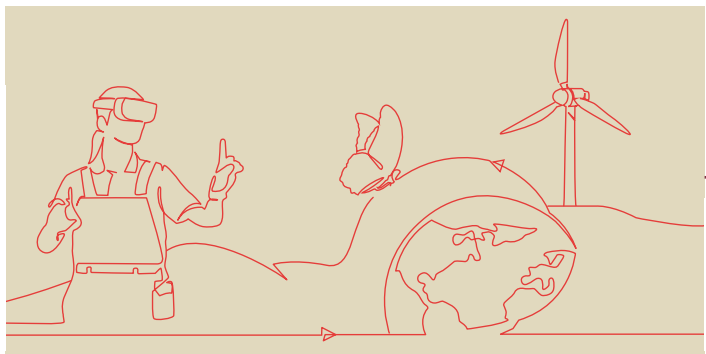
SUSTAINABILITY IN THE SHEET METAL INDUSTRY

ITALY: TRADITION MEETS TECHNOLOGY

NETHERLANDS: THE SMART FACTORY BECOMES A REALITY

HUNGARY: FOLDABLE CONTAINERS OPEN UP NEW PERSPECTIVES

CONTENTS



Dear reader,

This issue of our magazine coincides almost perfectly with the publication of our very first Sustainability Report. I take pride in the fact that in future, we will issue an annual report on our ecological, social, and entrepreneurial commitment. We are thus laying the foundations for continued sustainable improvements at Bystronic, for our customers, and for our industry.

Bystronic's sustainability strategy will be spearheaded by our Sustainability Council. In this issue, Michael Präger offers you a first insight. Find out why we view sustainability as an opportunity and how we are working towards making the sheet metal industry more sustainable.

Many of our customers are doing the same, for example Aussafer Due. The family-owned northern Italian company's focus on sustainability has captured the interest of the investor Alessandro Benetton, and – spurred on by strong growth – they are set to conquer new markets in Europe.

Sustainability and digitalization go hand in hand. And when it comes to digitalization, our customer VD Leegte Metaal in the Netherlands has big plans. Together, we have developed a comprehensive smart factory solution that will be commissioned in the spring of 2023. We talked to their Managing Director Toine van de Rijdt to learn how he expects this smart factory will benefit his company.

And there is no better opportunity for you to witness our solutions for sustainability and the smart factory up close than at EuroBLECH in Hanover at the end of October. We look forward to welcoming you at our exhibition booth.

Wishing you an enjoyable read,

Alex Waser, CEO

Bystronic

IMPRINT

Bystronic World – The magazine for cutting, bending, and automation

Editor-in-Chief, Art Director: Stefan Jermann
Editors: sda/awp-multimedia, Zurich, Switzerland
Design and printing: Kopflipartners AG, Neuenhof, Switzerland

Circulation: 14,000 (German and English)
Paper: PlanoJet FSC, 200 g/m² and 100 g/m²

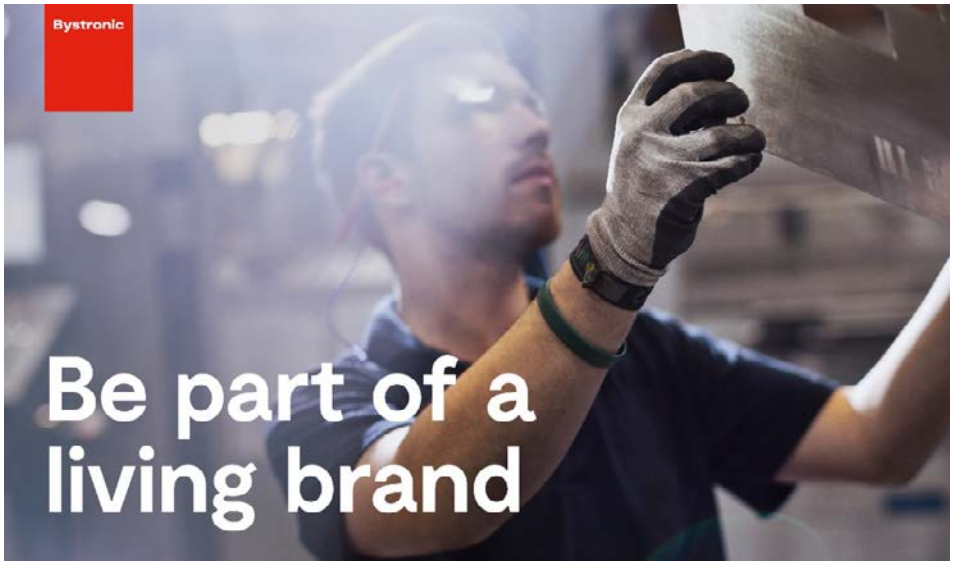
Cover: Illustration by Justin Wood
Back cover: Photo by Florian Kehl

Published by Bystronic, Corporate Communications, Industriestrasse 21, 3362 Niederönz, Switzerland | For reprinting rights and all other queries, please contact Corporate Communications: corcom@bystronic.com. Reprinting without prior agreement is not permitted.
Overall responsibility: Michael Prager

Bystronic

NEWS

Living brand: Human-centered



In the future, our visual world will focus on the people who work in the sheet metal industry. Why? Because their passion constitutes the core of the Bystronic brand. This insight is the result of internal and external surveys around the globe. Naturally, this does not mean that machines and solutions will be left out of the picture.

Compact bending artist

Faster bending, lower energy consumption: The new ByBend Star 120 achieves this amazing feat. Thanks to the "Laser Angle Measuring System" (LAMS) and "FastBend Plus" functions, users achieve perfect quality from the very first part. The compact press brake is designed for small to medium-sized parts, a wide spectrum of sheet thicknesses, and materials with higher tensile strengths.

New apprentices in Gotha

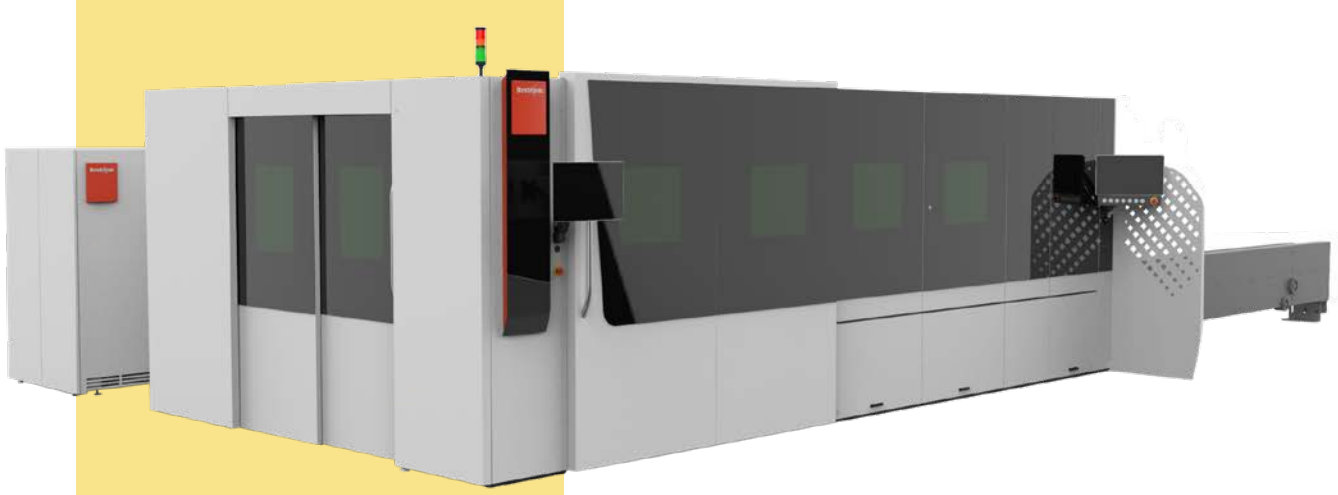
A warm welcome to Bystronic: Seven young talents recently started their careers at our site in Gotha – launching into apprenticeships in diverse fields such as IT, mechatronics, and administration.

Our new apprentices: Lucien Leschinski (Duales Studium Mechatronik), Kevin Schuchardt (Konstruktionsmechaniker), Toni Max Andreas (Mechatroniker), Jonas Jauch (Fachinformatiker), Jannik Machts (Konstruktionsmechaniker), Enie-Lotta Günther (Kauffrau für Büromanagement), Josephin Goldmann (Mechatronikerin)

BySoft
Bystronic Software Suite

Fully digital

The future starts now: With the BySoft Suite software solution, sheet metal processing companies can now handle all their processes completely digitally – from the quotation all the way through to the shipping of the finished product. This boosts the efficiency of every process step while offering maximum transparency in real time. The BySoft Suite expands the BySoft software portfolio, which has been contributing to the success of Bystronic's customers for many years.



A new star is born

Laser power meets premium design: The new ByCut Star continues the success story of fiber laser technology. With a laser output of 30 kilowatts, the successor to the ByStar Fiber outclasses everything to date. Smart features such as the "Automatic BeamShaper" (ABS) and the "Parameter Wizard" round off the ByCut Star's performance spectrum. Our new flagship model is available in the 3 × 1.5 meter or 4 × 2 meter formats.

FOLLOW US

Stay up to date and follow us on

www.linkedin.com/company/BystronicGroup

www.youtube.com/user/BystronicBestChoice

www.facebook.com/bystronicgroup

Trend NEWS

naratek
Powered by Naratek.com

Image: Keystone

For the climate: Cycle like the Danes

The average Danish person cycles approximately one mile every day. If everyone used their bike this much, it would reduce the global carbon footprint by 414 tons a year. That is equivalent to the annual CO_2 emissions of Great Britain. This is the result of a study conducted by the University of Southern Denmark in Odense.

A soft robot: like a caterpillar, but ultra-fast

A new type of "soft" robot developed at the University of Linz looks like an inverted U made of silicone. Using electricity to rapidly expand and contract its lower ends, it moves like a caterpillar – but at ultra-high speeds. Thanks to the contractions, the robot can even overcome obstacles, swim, or grip objects. In short: A system with a huge potential, in particular in the field of human-machine interaction.

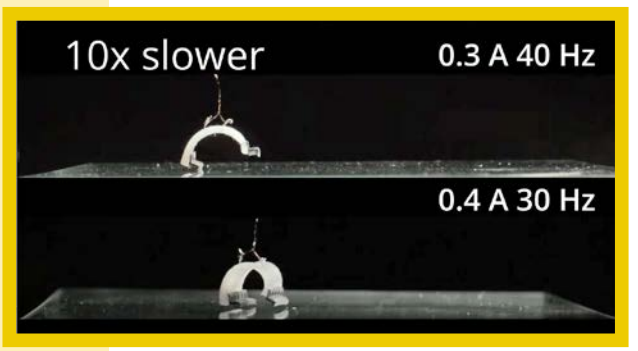


Image: YouTube screenshot

Image: Keystone

AI helps with early diagnosis of diabetes

Researchers in Geneva have discovered a molecule that can be used to detect diabetes at a very early stage, even before the first symptoms emerge: 1.5-anhydroglucitol. To identify it, they used machine learning methods to analyze thousands of molecules in mice.

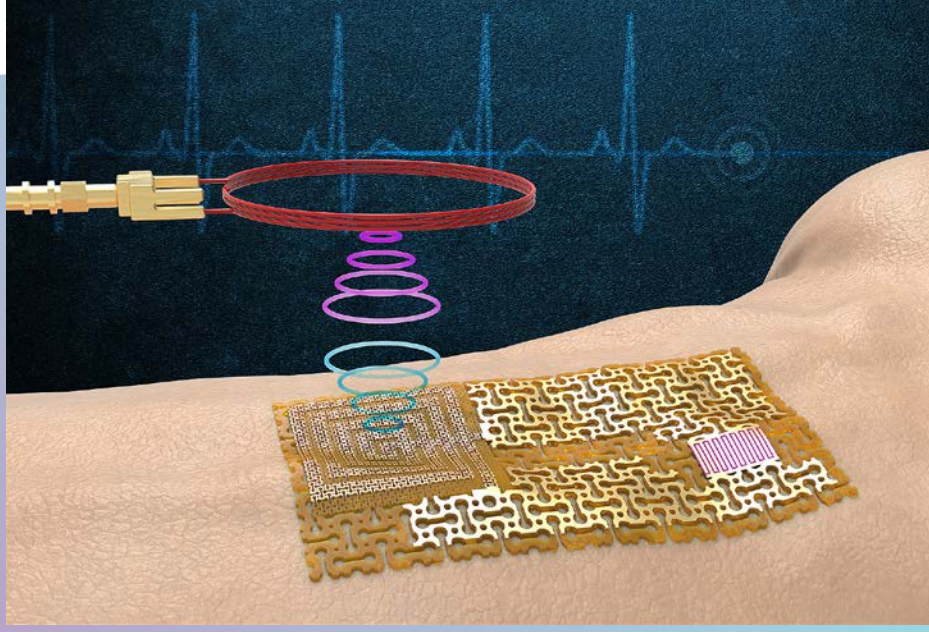


Image: Courtesy of the MIT researchers

A sensor without a chip or battery

The skin sensor is as thin as adhesive tape and can send signals – without requiring a chip or a battery. "E-Skin" was developed at MIT and utilizes the property of gallium nitride to react to electrical impulses with mechanical deformation. Reinforced with a conductive layer of gold, the sensor is so sensitive that in response to a person's heartbeat or the salt in their perspiration it can vibrate as well as generate a readable electrical signal.

Image: EMPA

A drop is all it takes: A paper battery with a water switch

A team of researchers at the Swiss Federal Laboratories for Materials Science and Technology (Empa) has developed a disposable paper battery that functions using metallic inks and salt – and it is activated by a drop of water. This technology could be used to power a wide range of small, disposable electronic devices with minimal power requirements, such as smart tags for object tracking, environmental sensors, or medical diagnostic devices.

FOLLOW US

Stay up to date and follow us on

www.linkedin.com/company/BystronicGroup

www.youtube.com/user/BystronicBestChoice

www.facebook.com/bystronicgroup

The Citossi family: In step with progress

Sights set on new markets: CEO Giacomo Citossi is driving forward growth.

Within 50 years, the Italian family enterprise Aussafer Due has evolved from a small artisanal manufacturer to a leading supplier of high-tech sheet metal processing services. Thanks to investments in state-of-the-art technologies, the company is now one of Italy's market leaders. North of the Alps, new markets await conquest – but still the Citossi family remains true to their regional roots.

Text: Giovanni Caramo Photos: Masiar Pasquali

1 *Aussafer Due has been relying on Bystronic technology since 1991.*

2 *Giacomo Citossi recently took over the company from his parents.*

3 *The experienced workforce knows the needs of their more than 750 customers.*

4 *Among other things, the company produces parts for household appliances, heating systems, and agricultural machinery.*

5 *Automation solutions speed up loading and unloading.*

"When I was a young boy, my father used to take me here on the weekends. And I can still distinctly remember that smell of iron, it really got under my skin." Talking about his first steps into the family business, Giacomo Citossi is visibly moved, even though nowadays, nothing resembles the old factory of his childhood. The aisles of the 35,000 square meter production plant are lined with state-of-the-art laser cutting technology. Behind the green protective glass of the ByStar Fiber, metal sheets are cut with almost surgical precision.

Thanks to constant innovation and a conquering spirit, the only 33-year-old Giacomo Citossi was recently able to take over the reins of what has become the leading Italian sheet metal processing company with a focus on precision laser cutting services. Today the group, located in San Giorgio di Nogaro, northeastern Italy's economic powerhouse, employs more than 400 people and expects its turnover in 2022 to exceed 100 million euro.

Expanding the manufacturing spectrum

This big leap forward for Aussafer began at the end of 2020 when they closed a deal with "21 Invest", Alessandro Benetton's private equity fund specialized in helping family-owned companies grow by focusing on competitiveness and sustainability. This in turn led to two major acquisitions in the Italian market: Ramo srl, in 2021, specialized in stamping, laser cutting, bending, and metal fabrication, and Laserjet spa, in 2022, another key sheet metal processing player specialized in complex and heavy components.

These acquisitions have enabled Aussafer Due to further diversify their already broad manufacturing spectrum. Today, the company produces an almost endless variety of parts and products. "Meanwhile, our client base is more than 750 strong," explains Giacomo Citossi. "Among other things, we supply our customers with components for air conditioning, agricultural and landscaping machinery, refrigeration, heating, furniture, household appliances, and industrial machinery. And then there is the niche market of electric motors, for which we produce prototypes of rotors and stators using high-precision laser-cut laminations."

Standing in his office, at the very core of his factory, overlooking the machines cutting, punching, and bending, Giacomo Citossi proudly shows a stator that will be used for a prototype electric car motor. The volume of these parts is rapidly increasing year by year. The dynamic CEO is convinced that this is the way to make a difference in this highly competitive sector.

"We northeastern Italians have always had a strong drive to go abroad. I want our products to be everywhere."

Giacomo Citossi, CEO Aussafer Due

High-tech as a competitive edge

At its factory in San Giorgio di Nogaro, the company has been committed to sustainability for many years. At the beginning of the new millennium, Claudio Citossi, Giacomo's father, and his sister Luisa Citossi launched a project to cover the entire factory building with solar panels. The current photovoltaic system supplies more than 2 megawatts and covers almost half of the company's power consumption.

"We have always focused on new and efficient technologies," Giacomo Citossi says. "We strongly believe in efficiency along the entire supply chain, which ultimately translates into a competitive advantage." Over the years, Aussafer has modernized all its laser equipment, always choosing Bystronic machines, in order to reduce energy consumption and to speed up production. It started with the transition from CO_2 technology to fiber lasers. Then to the second generation of fiber. And finally, all the punching machines were switched from hydraulic to electric – as were most of the bending machines. ▶

The relationship with Bystronic has been vital to the development of Aussafer's business. The partnership between the two companies dates back to 1991, when Aussafer first put its trust in the high quality of the laser cutting systems from Switzerland. "In recent years, new technologies have enabled giant strides in our industry," the CEO emphasizes. "Bystronic is very much at the forefront of this development. They only use premium components and continuously drive forward the development of their software. And Bystronic sees the latter not as an individual component, but as a platform – and therein lies the future."

Producing around the clock

Besides software, automation also plays a key role at Aussafer Due. All lasers are equipped with automation solutions, ranging from the ByTrans Extended, to the combination of ByTrans and ByTower, right through to the top-of-the-range trio consisting of ByTrans Cross, ByTower, and BySort. These Bystronic solutions help Aussafer to keep their machines running at high capacity, reduce their manual handling, and utilize the time of their highly skilled workforce for those tasks that add the greatest value. Production runs 24 hours a day. But the human factor remains at the center. "The machines are very reliable, but you have to understand when automated processing makes sense. There are some jobs that are simply more practical to process manually," Giacomo Citossi explains.

Another foundation of Aussafer's success is their staff , some of which have been working for the Citossi family since the 1990s. "The team that has been created across different departments, often with transversal roles, is fundamental to securing the dynamism of this company," Giacomo Citossi emphasizes. "There are people here who have experienced the entire technological evolution – from the very first CO_2 machines that came in 1991 right through to the latest fiber lasers that were installed this year. So the fact that they are familiar with every type of technology and every type of customer guarantees results that are individually tailored to the needs of our customers."

New prospects north of the Alps

The story of this family business is similar to that of many others that fundamentally transformed Italy's economy within the course of a few decades. In the 1960s, Giacomo's grandparents founded an artisanal firm out of a small shed attached to their house. Their mainstay was tinsmithing and sheet metal work for buildings and church roofs. Back then, they manually beat the sheet metal into shape.

It was only the second generation that expanded the company to an industrial level: In the 1990s, Claudio and Luisa Citossi moved to a much larger factory in the industrial district just outside San Giorgio and started filling up the space with machines. The growth was immediate and strong. But the family's ambition to build something bigger didn't stop there. The collaboration with Alessandro Benetton, a pioneer in the Italian private equity market and the Chairman of Edizione SpA – one of the largest European industrial holding companies – made it possible for the third generation to take the company to the next level.

"The partnership with Alessandro Benetton's 21 Invest gave us the opportunity to implement our strategy and vision for Aussafer," Giacomo Citossi explains. "We wanted to create a group of complementary companies capable of leading the Italian market and offering our customers a comprehensive range of products and services." But this was just the first step. The next goal for the young CEO is to take Aussafer over the Alps with the acquisition of an Austrian or German company. His aim is to become one of the top European players in this sector.

"We northeastern Italians have always had a strong drive to go abroad," Giacomo Citossi concludes. "Here, we want our products to be everywhere, and we keep on trying until we succeed in creating something that the markets abroad want. That's the philosophy on which the success of 'Made in Italy' is based." ■

PROFILE **Aussafer Due**

Bystronic customer since:	1992
Production location:	San Giorgio di Nogaro, Italy
Field of business:	Sheet metal processing services
Founded:	1966
Employees:	Aussafer Due 90, group > 400
Turnover:	> EUR 100 million (group projection for 2022)
Technologies:	Laser cutting, bending, punching/stamping, tube processing, welding, and fabrication

INTERVIEW

"THE FAMILY NATURE OF OUR COMPANIES IS OFTEN THEIR GREATEST STRENGTH"

Why did you decide to invest in Aussafer Due?
Aussafer is a local industrial landmark that reflects the characteristics of a good and healthy company in our country. The care taken by the Citossi family and Aussafer's management to constantly innovate their processes and take care of their employees, customers, and suppliers – without neglecting the aspect of environmental sustainability – was a fundamental starting point for 21 Invest.

Photo: Simone Tadiello

Alessandro Benetton, *Founding Managing Partner of private equity fonds 21 Invest*

Aussafer Due is now a leader in its industry – what could be the next goal?
The goal is to create a European leader for high-tech sheet metal processing by means of strategic acquisitions of industrial entities that will enable Aussafer to offer an increasingly broad, technological, and cutting-edge portfolio of services, with a particular focus on players in the German market.

Why is it important to you to invest in companies that have always been led by the same family?
The family nature of our companies is often their greatest strength, and it is up to us to enhance it through strategic actions that favor a discontinuity: an opportunity for growth that looks to the future. This is exactly what we are doing with the Citossi family, maintaining the family's founding values but supporting them with a long-term international vision.

How do you reconcile industry and sustainability?
Environmental sustainability is important, but so is social sustainability. Entrepreneurship that takes its social impact into account is the only right form of entrepreneurship. At 21 Invest, we fully embrace Michael Porter's shared value theory, which states that the success of your company has to be aligned with the success of your community. ■

No time to waste:

Sustainability starts here and now

All industries are currently striving to become more sustainable, and that includes the sheet metal processing sector. But sustainable operations are easier said than done. Where to begin and what is available as guidance? An insight into Bystronic's sustainability strategy.

Text: Stefan Jermann Illustrations: Franco Troxler

Many industrial companies are actually already becoming more sustainable without even being consciously aware of it. Saving packaging material to reduce shipping costs automatically contributes towards sustainability. And companies that reduce their raw material consumption by making their production processes more efficient are also helping to protect the environment. And even more so if they use the heat generated by their machines to heat their buildings.

Such measures pay off twofold, because the efficient use of resources is just as economical as it is ecological. Thus, measures such as these provide a sound basis for a sustainability strategy. If the various initiatives within a company are brought together and linked to objectives, a clearer picture emerges of where a company stands and what still needs to be tackled.

After all, the urgency to take action is ever increasing: Floods, droughts, and crop failures are persistent reminders of the inconvenient reality of climate change – and of the pressing need to make the transition from fossil fuels to sustainable energy cycles. Skyrocketing energy prices and the looming natural gas shortages are playing their part to promote the consideration of new approaches.

The UN Sustainable Development Goals offer guidance

With its 17 Sustainable Development Goals (SDGs), the United Nations has outlined the global sustainability strategy, in relation to which all member states report their progress each year (Agenda 2030).

These goals encompass environmental, social, and economic aspects and provide a baseline for national legislation. Actual laws for the achievement of a sustainable future are being implemented at varying rates, but they are being implemented – and as a result, so are ever stricter regulations. This is applying pressure, particularly on industry.

The Sustainable Development Goals also offer companies in the sheet metal processing sector an opportunity to expand and accelerate their efforts in the field of sustainability. At Bystronic, we have collaborated with external stakeholders to determine which of the UN SDGs we can and must, already today, contribute towards achieving. This has triggered an enormous surge of motivation among our employees.

Our motto is "impact over compliance"

In our opinion, regarding sustainability merely in terms of fulfilling requirements falls short of the mark. The motto must be "impact over compliance": The goal is to implement sustainability based on an intrinsic motivation to achieve the greatest possible impact – and not merely to satisfy external regulations. Bystronic is doing everything in its power to make rapid progress, because for us, sustainability encompasses entrepreneurial opportunities and an innovative drive. The prerequisite for this, however, is the commitment of everyone involved. ▸

#develop

Empowered People

Talent Development

Diversity **Workplace**

This applies not only to our company, but to our entire industry. We are joining forces with others to promote carbon-neutral steel production and to make the entire ecosystem surrounding our business sustainable. The transition towards more sustainable production is not something a company can achieve on its own. The fact that "everything is connected" applies not only to the global climate, but equally to the global supply chains. As a player in the metal processing sector, we are committed to ensuring that our industry becomes fit for the future. This is why we are already trialing the processing of "green steel" with Bystronic machines.

To maximize the impact of our efforts, we have integrated sustainability as a key element of our corporate strategy and developed our own sustainability framework. For this purpose, we drew on our materiality topics and the UN SDGs to define three core areas of action: empowered people, sustainable solutions, and responsive business. Our very first sustainability report released this year outlines where we currently stand.

#zero

Sustainable Solutions

Decarbonization

Resource Efficiency & Circular Economy

Our customers' sustainability makes all the difference

The long-term goal of our strategy is to achieve "climate-neutral production". On the one hand, this relates to Scope 1, the emissions we cause directly. We have already made considerable progress in this area: At our headquarters in Niederönz, we switched to 100 percent electricity from hydropower and also installed a photovoltaic system and charging stations for electric vehicles.

On the other hand, our ecological footprint depends on Scope 2: the emissions generated along our supply chain. In procurement, we are collaborating with our suppliers to analyze how we can reduce emissions for the materials we purchase throughout the entire value creation process. In addition, we regularly commission the EcoVadis rating agency to assess the sustainability of our supply chains in order to gain clear guidelines for improvement.

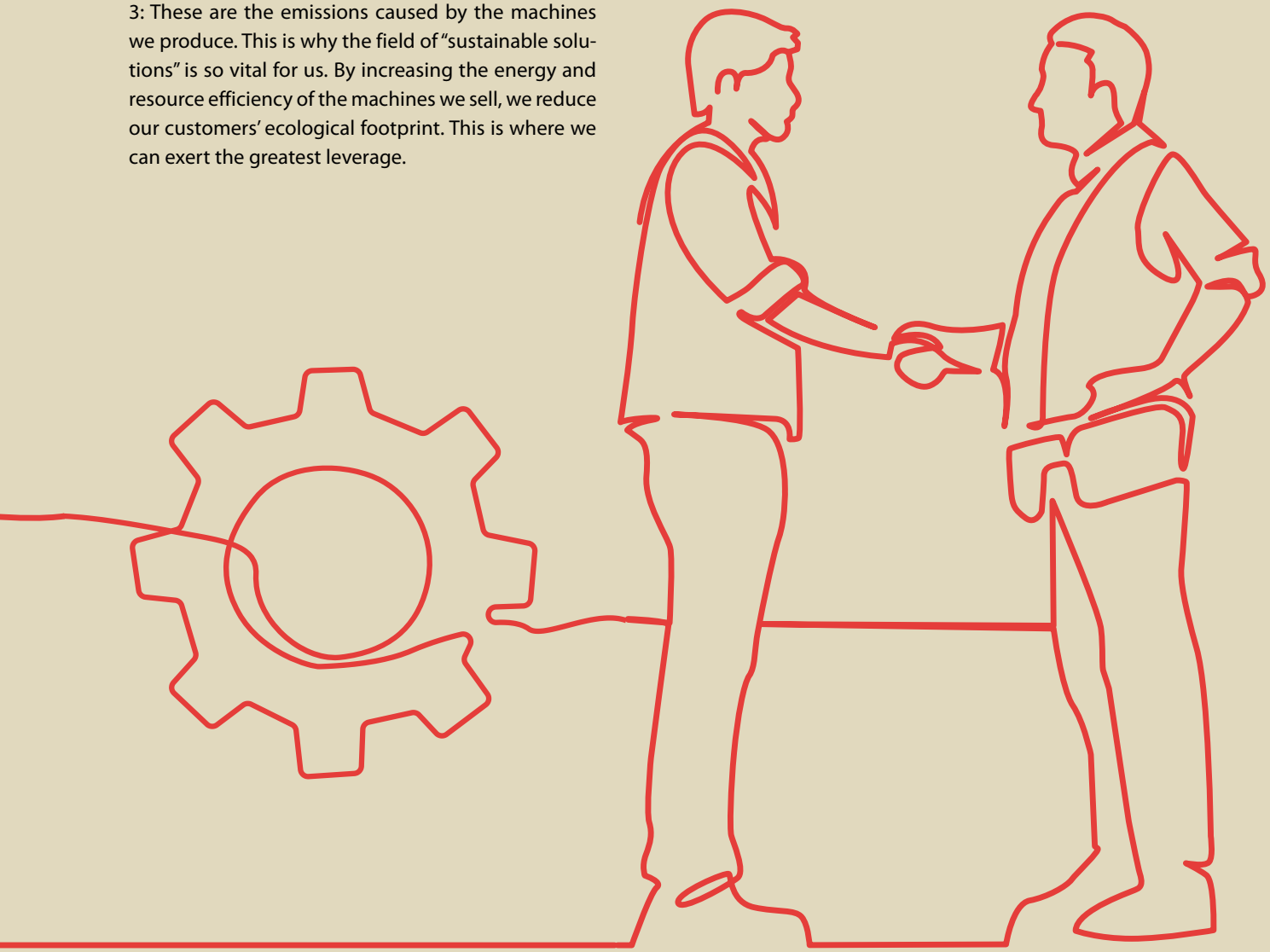
However, as an industrial mechanical engineering company, our greatest potential impact lies in Scope 3: These are the emissions caused by the machines we produce. This is why the field of "sustainable solutions" is so vital for us. By increasing the energy and resource efficiency of the machines we sell, we reduce our customers' ecological footprint. This is where we can exert the greatest leverage.

But we want to do more than just continue to enhance our machines. In cooperation with energy partners, we offer our customers package solutions, so that when they purchase a Bystronic machine, they can simultaneously install nitrogen generators and photovoltaic systems. Both of these examples go above and beyond compliance: The regulatory authorities only classify our machines in terms of their energy consumption – and not, for example, in terms of nitrogen consumption or the use of renewable energies. ■

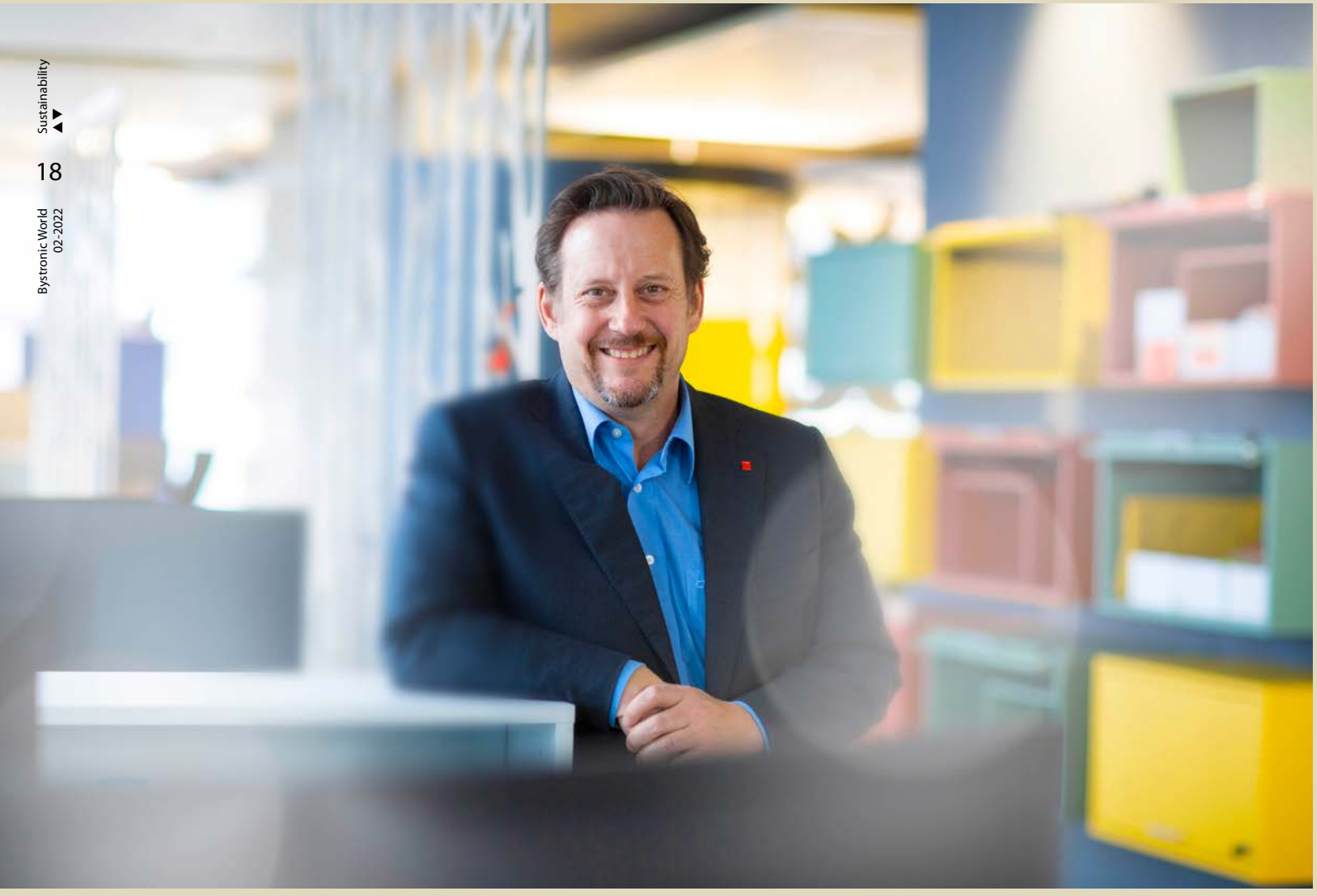
#enable

Responsive Business

Supply Chain | **Partnerships** | **Sustainable Services**



“WE WANT TO INSPIRE THE SHEET METAL INDUSTRY TO BECOME MORE SUSTAINABLE”



Michael Präger is Bystronic’s Chief Communications & ESG Officer

"The simplest approach is to start out where ecological practices are already in place."

How is Bystronic tackling the issue of sustainability?
In our opinion, it is not sufficient to focus only on keeping up with legal regulations. Only when sustainability is embraced throughout the company and implemented beyond our own supply chains does real innovation emerge – and with it an essential step towards becoming fit for the future.

What objectives are you pursuing with regard to sustainability?
We have defined goals on three levels. Firstly, we want to make our production more sustainable, and secondly also the production of our customers. Thirdly, we want to inspire our entire industry to embrace sustainability and work together in partnership.

And how do you convert these objectives?
From the outset, our focus has been not so much on compliance and reporting, but on action and implementation. We established a Sustainability Council, where people from all departments work together to develop and identify ideas and potential for improvement. Once you have compiled initial facts and figures, you can set yourself goals, preferably as ambitious as possible, and get started.

Where is the best place to start?
The simplest approach is to start out where ecological practices are already in place. Most companies are already implementing initiatives that can be analyzed through the sustainability lens. And there are many employees who are passionate about the topic and who are eager to do their part to make the green transformation happen. They value their employer's efforts to live up to its responsibility and prioritize sustainability. ■

5 STEPS TO A SUSTAINABILITY STRATEGY

1. Review the 17 UN Sustainable Development Goals
2. Assess what your company is already doing in terms of sustainability
3. Analyze which topics are relevant for your company
4. Identify employees who want to help drive sustainability forward
5. Establish a small team that will raise awareness and drive forward the issue throughout the company

INTERVIEW

FLAGSHIP PROJECT: A SMART FACTORY FOR VD LEEGTE METAAL

The future of sheet metal processing begins in Hapert near Eindhoven (NL). There, in collaboration with Bystronic, VD Leegte Metaal is building a smart factory. Toine van de Rijdt, Managing Director of VD Leegte Metaal, talks about cut parts that are 99.5% waste-free, the integration of machines from different manufacturers, and his vision of Industry 4.0.

Text: Thomas Peterhans Renderings: ArchiCGI

Mr. van de Rijdt, how important is the smart factory project for VD Leegte Metaal?
The smart factory is one of our top priorities. In the current economy, we need to ensure that we meet the high demands of the market. At the same time we are struggling with a shortage of employees in Europe. The smart factory gives us the opportunity to fully automate every production step. This allows our employees to focus on more challenging tasks. One goal of automation is to increase productivity with the number of employees we already have.

«We can now monitor the performance of the processes in real time.»

Toine van de Rijdt, Geschäftsführer VD Leegte Metaal

What other goals do you want to achieve with the smart factory?
With this project, we want to avoid duplication in the office. At this moment we are working with the IT departments of Bystronic and the VDL Groep [VD Leegte Metaal's parent company] to ensure that our ERP system can communicate with the shop floor and vice versa. Real-time communication between these two levels will ensure we never do the same task twice.

Where on the shop floor does the smart factory increase efficiency?
With the smart factory, many processes will run fully automatically. Everything will go faster. Material handling, for example. We are currently building a massive sheet metal warehouse with 1,400 cassettes. This fully-automated storage solution will eliminate a lot of logistical tasks that previously had to be performed by the laser operators. This will save us a great deal of time, which we can use for more productive work.

How do you handle the material at the laser cutting machines?
All of our laser cutting machines are equipped with sorting solutions. All the cut parts are automatically sorted onto pallets. We also have two robot bending cells. The cut parts go directly to the bending machines so that we can produce 24/7. Everything to do with laser cutting, sorting, bending, and warehouse logistics is fully automated. The transport between the machines and the warehouse is ensured by AMRs, autonomous mobile robots.

Personally, what fascinates you about the smart factory?
From my point of view, the fact that our employees no longer have to do any heavy work is a big step forward. And automating the current processes is just the beginning. The automation of robot welding is also in the pipeline. Beyond that, I'm intrigued by the many possibilities that the data we collect gives us. We can now monitor the performance of the processes in real time and

“Thanks to automation, our employees can focus on more challenging tasks.”

Toine van de Rijdt, Geschäftsführer VD Leegte Metaal

immediately optimize production if necessary. With the smart factory, we can initiate improvement processes at any time. Last but not least, I would like to mention the opportunities that lie in integrating machines from different manufacturers into the overall production process.

How do you think the smart factory will impact working dynamics?
One thing is certain: The impact will be huge. In future, the operators' main tasks will be to ensure that the machines remain in working condition and to apply shop floor software and plant planning to keep them continuously producing parts. So one of the priorities is preventive maintenancez. In a smart factory, we also need additional employees with new educational backgrounds – both on the shop floor and in the office.

And how is the organization of production changing?
From planning to production, processes today generally run step by step. With the data we have today, we can plan and run processes much more efficiently. We always have the possibility to find the best solution in real time, and we can simply adapt the processes depending on our order situation.

What is your vision for the future?
Everybody is talking about Industry 4.0. But actually, there's still a long way to 4.0. I would say we are currently at 2.0. The next step that is already in our pipeline is an online integration solution, which will simplify the order process for our customers and immediately let our shop floor know what it must do. I also see a great deal of potential for welding robots. Together with universities and suppliers, we are currently working on new solutions for the welding process.

New solutions also resulted from the cooperation with Bystronic.
That's right. In 2020, we invested in the 12 kilowatt ByStar Fiber with an automatic sorting solution. We were happy with it, except for the residual waste that sometimes remained attached to certain parts after cutting and sorting. In the past, the cut parts went through the hands of our employees, who ensured that any residual material was removed. When the sorting is automatic, this quality control no longer exists. We therefore demanded that this residual waste be kept to an absolute minimum. So we entered into a co-development agreement with Bystronic to achieve waste-free products.

And did you manage to reduce waste?
Yes – 99.5% of the products are now completely waste-free. Bystronic developed a two-stage process for the BySort that separates the product from the residual material. The solution consists of vibration tools and a tilting table. This is one of the co-development innovations. Another one revolves around the cleaning of the cutting tables. We would like this work step to be completely unmanned as well.

In general, what do you think about co-creation?
It's very important because when companies join forces, they grow stronger and smarter together. And when you know what the others want and what know-how they have, you achieve the best solutions. That is the true strength of cooperation.

What is your conclusion on the collaboration with Bystronic so far?
Overall, we are very satisfied with our cooperation with Bystronic. Bystronic has two project managers on site where we are currently building the smart factory. The communication is very good and the response times are very fast. We are currently also discussing a 24/7 maintenance contract with Bystronic Benelux for when we receive the keys on April 1, 2023. ■

Complete Smart Factory solution from a single source: a rendering of the plant from VD Leegte Metaal.

From individual solutions to an integrated system: a project overview

The smart factory solution for VD Leegte Metaal in Hapert, Netherlands, takes sheet metal processing to the next level. In the words of Erik Metternich, Director of Global Key Account Management EMEA at Bystronic, the two-year project marks a milestone for fully automated manufacturing.

The main challenge for this flagship project was the software for the seamless integration of all components, Erik Metternich explains. However, the decisive aspect for the success of the project was something else: "The key success factor was that we were able to offer a hands-on solution for all of VD Leegte Metaal's specific requirements."

The warehouse: At the smart heart of the factory

The warehouse consists of 37 towers with a total of 1,395 storage positions. These are accessed by two elevators. Each tower is 9.5 meters high. On the left side, the warehouse is equipped with four input-output stations. These can handle up to 24 metric tons of material per hour. On the right is the unloading station for the removal of cut parts, which can be transported away by automated guided vehicles (AGVs).

The material flow between the warehouse and the shop floor is self-organizing. The laser cutting machines request the raw material directly from the warehouse and return the cut parts as required. This applies to both the Bystronic laser cutters and the Trumpf TC6000, which has been integrated into the system. The bending cell is networked with an output station.

The fiber lasers: Non-stop precision

The Smart Factory boasts two all-new 15 kW ByStar Fiber 3015 Dynamic Edition laser cutting machines: Both systems are equipped with NCT and KerfScan. In addition to the standard O_2 and N_2 ducts, an additional high-pressure duct has been prepared for the connection to an N_2 generator.

The loading and unloading and the sorting processes are handled by a total of three ByTrans Modular and three BySort systems with two sorting units. The latter are optimized by means of a new process that ensures that 99.5 percent of the cut parts are completely separated from residual material. In addition, the cleaning of the cutting tables has also been automated.

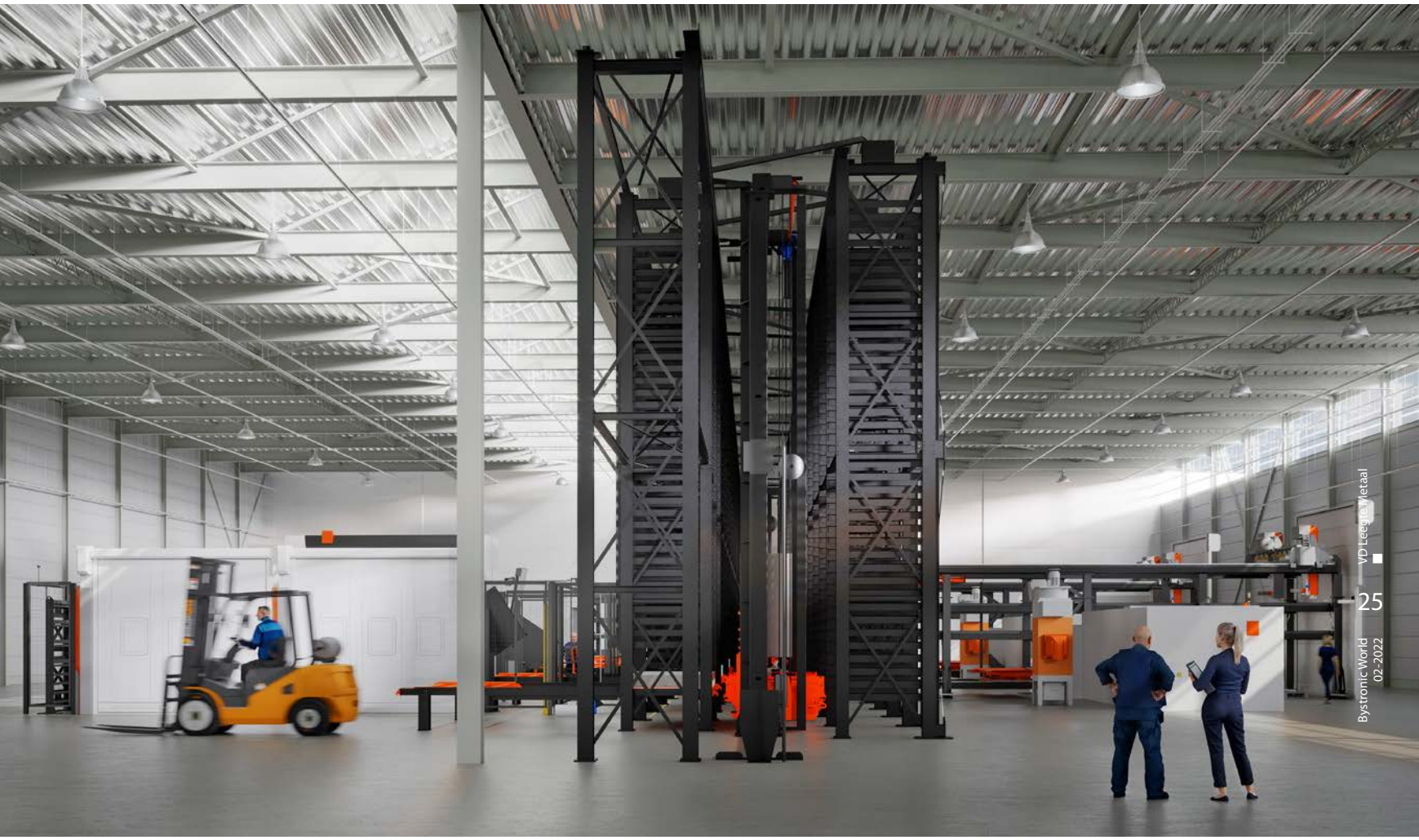
The bending cells: Bending directly from the warehouse

The analysis of 50 reference parts from VD Leegte Metaal revealed that the Xpert Pro, with a press capacity of 250 tons and a maximum bending length of 4.3 meters, meets all the requirements of their product range. The robot has a capacity of 210 kg.

The parts to be bent, which are stacked on pallets above the cassettes or directly on the cassettes, are fed directly from the warehouse. A detection system guarantees that the robot only picks up one part at a time. For the removal of bent parts, the bending cell is equipped with a rolling gate. This allows easy access for forklifts and AGVs and ensures a safe working environment.

The software: The brain of the smart factory

Bystronic's Shop Floor Control Server makes it possible to manage the entire process flow from the file to the finished part, including intralogistics solutions. The programming of the bending cell is handled by two BySoft 7 Bending and Robot Manager modules. All software modules such as BySoft 7 Cutting, Plant Manager Cutting (PMC), BySoft 7 Bending, and Robot Manager are integrated in the latest system solutions. ■



View of the Smart Factory with gigantic automated sheet metal warehouse.

4 BENEFITS OF SMART MANUFACTURING

- Streamlined and more reliable processes
- Increased productivity and efficiency
- Enhanced flexibility thanks to predictable and plannable processes
- High transparency along the entire supply and production chain

PROFILE **VD Leegte Metaal**

Bystronic customer since:	2020
Field of business:	Sheet metal processing
Production location:	Hapert, Netherlands
Number of employees:	160
Founded:	1953
Parent company:	VDL Groep (family-owned group with more than 100 group companies and 15,000 employees)
Turnover:	5,78 billion euro (2019), group


CN20 686
CONTINEST.COM

Foldable space-savers: Continest's containers offer space on demand.

Containers made flexible

No product is more standardized than the container. Continest challenged the concept of the inflexible frame and developed a foldable solution. Success didn't come easy, but time proved the Hungarian company right.

Text: Kester Eddy Photos: Martin Fejer

Székesfehérvár is a city very much at peace with itself. Once the capital of the Hungarian Kingdom, and located some 60 kilometers south-west of frenzied Budapest, its 100,000 residents enjoy well-tended parks, elegant public buildings, and an old town replete with narrow, winding streets of neatly painted, Baroque homes.

Yet just two kilometers distant, across railway tracks and behind a massive grain silo, the scene could hardly be more different; beyond a dusty, sunbaked field, the skyline is dominated by a dark, gaunt utilitarian box of a building that, once approached, reveals it is host to a mix of businesses.

Of these, judging by the neatly parked stacks of black, rectangular metal contraptions, each the size of a giant bed, the most conspicuously productive is a company named Continest.

But whatever it lacks in overt charm, this site makes up for in manufacturing less overt value: Amongst other uses, these metal contraptions have helped save lives in the fight against Covid and in war-torn Ukraine.

Steep growth – and luck

Vidor Kis-Márton, casually dressed in jeans and T-shirt, steps into his office and quickly greets all present.

The office, however, is not part of a typical administrative building: Kis-Márton co-founder, co-owner, and CEO of Continest, works in his work; that is, he leads his 65 people strong operation from two of the containers manufactured in the company's fabrication facilities outside.

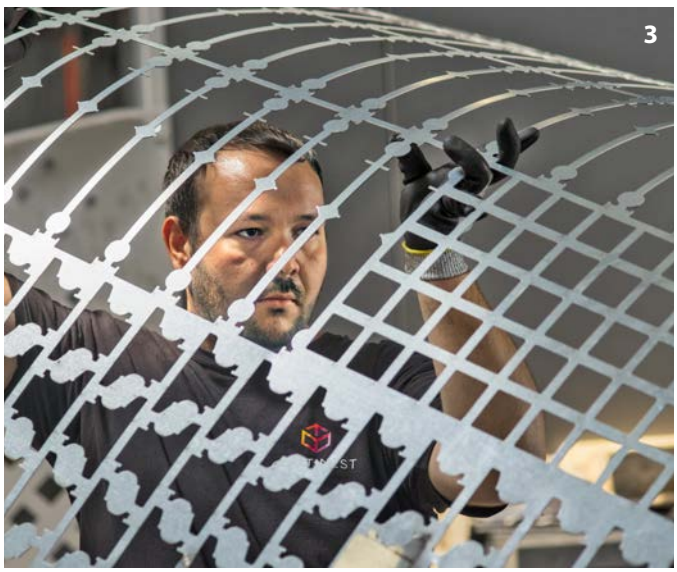
Not that an office in a container is so unusual – except that these are foldable. Take out the fittings, and with the help of a forklift, the office can be rapidly reduced to one-fifth its size – transforming it into one of the flat "contraptions" stacked up outside.

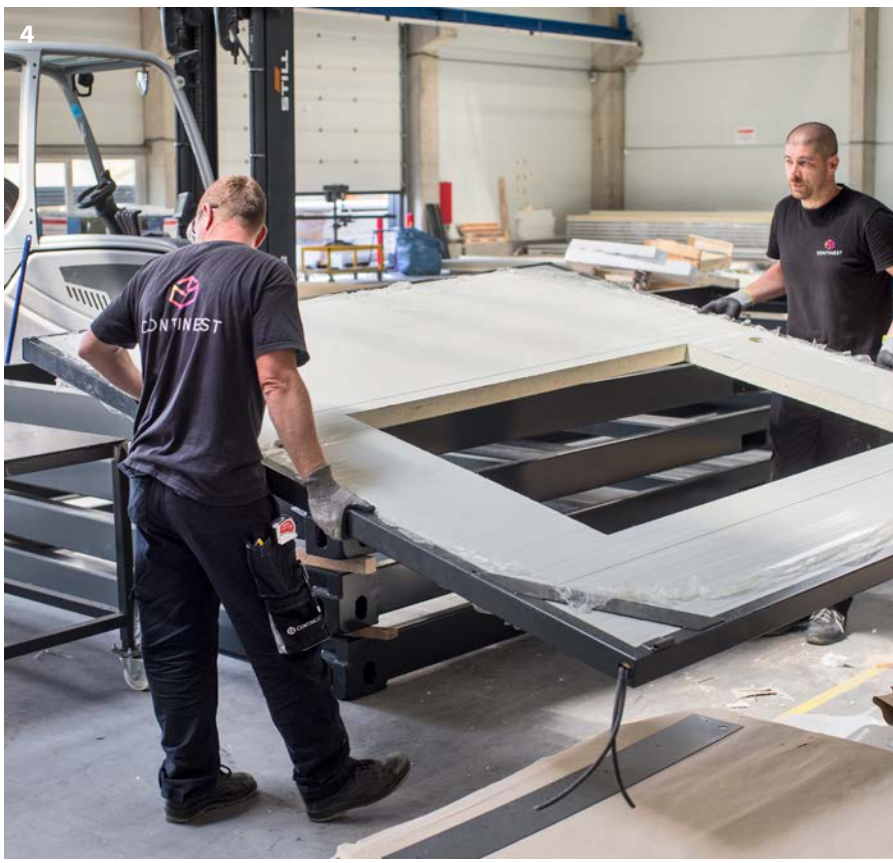
1 The flexible frame is a Dutch invention.

2 Vidor Kis-Márton, CEO of Continest, spotted the patented design at a music festival in 2016.

3 In addition to massive components, the folding mechanism also requires the cutting of thin sheet metal.

4 The Hungarian company produces between 1,000 and 1,200 units a year.





"It was a real garage business. I slept in a locksmith's workshop when we were building the first units."

Vidor Kis-Márton, CEO Continest

And business is booming. "We started manufacturing here in January last year. Right now, our goal is to have between 1,000 and 1,200 units per year. We have 4,500 square meters in this facility, and we're adding another 5,500 square meters, so we'll soon be able to double that," Kis-Márton says with an air of confidence.

It all sounds to be going swimmingly, but for a company only three years old, it begs the question how this has been achieved, especially since, by his own admission, neither Kis-Márton nor co-founder Dániel Tegzes, have any technical qualifications.

"I'm an economist, and Dániel has a degree in communications. So it makes complete sense that we own and run an engineering and manufacturing company," he quips, with more than a touch of irony.

The answer, listening as he relates the story, involves a combination of hard work, dedication, good business acumen along with sober, thoughtful leadership and luck – or perhaps better put, serendipity.

No easy task

The story, however, starts not in Hungary, but the Netherlands, when Rob van den Berg, a Dutch engineer, took a call from his brother some time in 2006-7.

The brother, who worked in the festival industry, was desperate to cut costs. At the end of each event, trucks would transport bulky containers, one at a time, to the next festival site – each holding nothing but fresh air. Couldn't the ingenious Rob design a foldable container, allowing a single truck to deliver several units at a time, and slashing transport costs overnight?

Van den Berg's first thought was it couldn't be done: designing a mechanism that allows a 2-ton container to collapse safely, reliably and in all weathers, is no easy task.

Yet he pondered. His solution was to fold the four sides into the frames, then split the four corner pillars in half, connecting them with a patented hinged joint, allowing the entire assembly to collapse. Simple, or so it seems in retrospect. Van den Berg got an order for 120 units. To cut costs, he found a city in Hungary where factory closures had left thousands jobless – Székesfehérvár. "I could ask for 15 welders on Friday, and they'd be there on Monday morning," he says. His project too, seemed to be going swimmingly, until, in 2011, orders dried up. Van den Berg closed his operation, and stored the drawings in a folder.

The roof is leaking

In 2016, Kis-Márton and Tegzes, in between jobs, decided to scour their homeland for business ideas. And at Budapest's famed Sziget festival, Tegzes took note of the collapsible containers. "On the road trip, this seemed to be the only reasonable opportunity that ▸

For its cutting and bending operations, Continest relies on Bystronic. In the picture, the Xpert Pro 200 press brake.

we found," Kis-Márton recalls. The pair tracked down van den Berg, only to find he wanted nothing to do with the headache of restarting a commercial operation again. He would, however, sell them the patent for his design.

The two Hungarian entrepreneurs were, it transpired, in the right place at the right time.

"In 2017, because Budapest and Hungary were hosting the 17th World Aquatics Championships, which just sucked away every temporary infrastructure on the market, Sziget and other event organizers were left with nothing. And we came onto the market. We were selling water in the desert," says Kis-Márton.

But to sell even water, you still have to procure it, and make it potable. "We were pretty clueless," he admits today. "We can say that now, because those times have gone, but it was a real garage business. I slept in a locksmith's workshop when we were building the first units."

"We were building containers every day over Christmas and New Year, but we delivered on time."

Vidor Kis-Márton, CEO Continest

And while there were no safety issues, "we had an issue with everything else", not least the roof sealing. "In summer, there are always thunderstorms, and 80% of our units were leaking, because we just couldn't solve how to fix the roof," Kis-Márton chuckles.

But the frazzled pair had a technical ace up their sleeves. Aware of their lack of engineering prowess, they had persuaded van den Berg to join the project as an employee from the start.

"I think that was one of our most important decisions. We didn't just buy the IP, we contracted him. He's been with us since 2016. Back then it was unbelievable, super stressful, but we also loved it, it was something completely new," he says.

Patched roofs apart, the 50 containers sold to the high-profile Sziget festival organizers were a "perfect market entry" in the first year.

Almost out of business

Come 2018, and a big push for international customers won a contract for 122 containers for the next winter's Alpine Ski World Championship in Sweden, despite the client's early doubts that a small, central European company with barely a track record could deliver. Once again, it meant spending the nights on the production lines.

"We had like two months to complete the order. It meant building containers every day over Christmas and New Year", says Kis-Márton, "but we delivered, on time and on budget."

PROFILE Continest

Field of business:	Foldable container solutions
Employees:	65
Revenue (2020):	1.836 billion HUF (4.5 million euro)
Headquarters:	Székesfehérvár, Hungary
Bystronic customer since:	2021

By 2019, the owners realized that a lack of capital was hampering growth, and they set out to find an investor. They founded Continest Technologies Ltd. (until then, operations were carried out by a company that was already owned by Kis-Márton before the container business started), then raised 4 million euro by selling a 20% stake to DBH, a Hungarian venture capital fund. With orders from England and preliminary agreements with UEFA, FIFA, and other sports organizers, the future looked bright.

Then Covid arrived

"We realized that everything we'd planned for was gone. We just burned through money in the first half of 2020. If we had not raised the capital in 2019, we would have been out of business," says Kis-Márton. Undaunted, they turned the disaster into an opportunity, their British partner switching orders intended for events into Covid testing and vaccination facilities, incredibly outperforming their original 2020 business plan by 30%.

But issues remained, not least with quality control. The operation thus far had relied on sub-contractors for manufacturing, and it was deemed time to bring operations in-house. Finding skilled blue-collar staff was also getting more difficult, meaning an investment in high-quality machine tools was needed. Once again, the plucky team found themselves in the right place at the right time. The Hungarian government, desperate to battle Covid, was offering support to any company involved in the fight.

In 20 seconds from start to finish

Thus it was that Continest set up at the Székesfehérvár site in early 2021, and installed three of Bystronic's latest-generation solutions – the BySmart Fiber laser cutting system, the FL 170 tube laser cutter, and the Xpert Pro 200 press brake – by the end of the year.

Inside the sheet metal workshop, Tamás Bara, shows off the tube cutter, its fine, bright laser cutting location holes in steel tubes to the tightest of tolerances before cutting them to length. Each tube, destined for the sides of a new prototype container, takes about 20 seconds from start to finish. "You can see that it's very, very efficient, and very quick. It has more capacity than we can use right now," says Bara.

Kis-Márton recalls the procurement. "It was a fairly long process with Bystronic, and not only with them, because we were tendering several solution providers. There were larger suppliers on the market, but for us, time was critical, so we had to have somebody who could not only deliver the specs that we needed, but also in the timeframe that we needed. We didn't have, like, 12 months to wait."

Armed with this machinery, Continest is now supplying containers to aid organizations in the Ukraine conflict. Units were donated to the Ukrainian police and emergency services. This opened a new target group. "We are also targeting the military market, and building a prototype sea container," Kis-Márton says, gathering up a bag of brochures in preparation for a sales trip to North America. "Our first units reached the US last month. Somebody once said 'the harder I work, the luckier I get.' That's totally us. We have never walked away from any opportunity that came to us." ■

Full order books: CEO Vidor Kis-Márton wants to double the output in the near future.

THE DIGITAL MAGAZINE ABOUT TECH, ZEITGEIST, AND THE WORLD OF TOMORROW

giving tech a soul

naratek

www.naratek.com

GLIMPSE – short for "Geological Lunar In-Situ Mapper and Prospector for Surface Exploration" – is based on the robot type "ANYmal" of the ETH spin-off ANYbotics. GLIMPSE is equipped with devices for petrographic and chemical rock analysis, including a raman spectrometer, a microscope for close-ups and a zoom camera for overviews and close-ups. Dr. Hendrik Kolvenbach (ETH) and Dr. Florian Kehl (UZH/HSLU) are responsible for the project management. In addition to ETH, University of Zurich and ANYbotics, the Lucerne University of Applied Sciences and Arts, University of Basel, and Maxon are also involved in the project.

published by Bystronic Group